Post-Fukushima Fault Studies for Nuclear Power Safety in California, USA

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The global dialogue on the safety and reliability of nuclear power plants changed following the 2011 Mw 9 Tohoku, Japan earthquake and tsunami. Pacific Gas and Electric Company’s Diablo Canyon Power Plant (DCPP) is a critical facility located near active fault zones in coastal California, USA. High-resolution 3D low-energy seismic-reflection profile data were used to map displacement along several fault zones. The Shoreline fault zone (SFZ) is less than 600 m from DCPP. New mapping extends the length of the originally estimated 23-km-long SFZ to 45 km long which increases the maximum magnitude for ruptures from M 6.5 to 6.7.

Emphasising an integrated geophysical and geotechnical assessment

Fiona Fitzpatrick, Geohazards Consultant, RPS AAP (Energy), Perth

Geophysical (GP) site surveys and Geotechnical (GT) site investigations are integral processes conducted as part of the planning of wells and subsea development/installation projects; providing important insights in mitigating risks associated with potential shallow geohazard subsea/subsurface features. As offshore exploration moves into deeper water, the risks to geotechnical drilling have changed as the required deeper boreholes are penetrate the shallow gas and other geohazard zones. This fast-developing geohazard requirement is often completely ignored or diluted as the general understanding of GP/GT survey by the industry is often used as a ‘tick-box’ to fulfil warranty or other purposes.

Seafloor pockmarks and submarine landslides: insight from the Northern Carnarvon Basin (Australia’s North West Shelf)

Rosine Riera, Geologist, NGI

Submarine landslides are common along the continental slope of the Northern Carnarvon Basin (southern part of Australia’s North West Shelf) and represent a major hazard for offshore developments. In the Barrow/Exmouth sub-basin area, two submarine landslides stand out due to the high density of seafloor pockmarks observed on their surface. The origin of these two pockmark fields is here investigated through the integration of MBES bathymetry, 3D seismic surveys, high-resolution 2D seismic lines and seafloor samples, hence giving the opportunity to discuss the relationship between these submarine landslides and associated pockmark fields.

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